

# THE LOW LEVEL JET AND THE SOUTH AMERICAN MONSOON VARIABILITY IN SALLJEX PERIOD

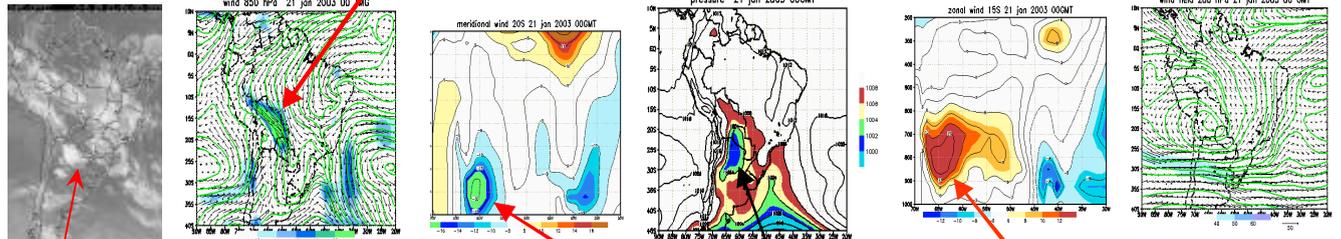


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IN JANUARY 2003 THERE WAS OCCURENCE OF SYNOPTIC AND MESOSCALE SYSTEMS OVER SOUTH AMERICA: SACZ, ATLANTIC UPPER LEVEL CYCLONIC VORTICE, FRONTAL SYSTEMS, MCCs AND SHORT WAVE DISTURBANCE. DURING THE MONTH THERE WAS VARIABILITY OF THE LOW LEVEL MERIDIONAL WIND IN THE REGION OF THE LLJET AND IN THE ATMOSPHERIC FEATURES RELATED TO THE SOUTH AMERICA MONSOON. THE DISCUSSION IS BASED ON CPTEC REANALYSIS FOR THE SALLJEX PERIOD USING CPTEC/COLA AGCM T126 L28 AND THE PSAS ASSIMILATION SYSTEM INCLUDING DATA FROM THE EXPERIMENT. THE ATMOSPHERIC FIELDS ARE SHOWN FOR ONE EPISODE OF MCC AND ANOTHER OF SACZ.

**Strong northerly winds over Bolivia and Paraguay**

JAN 21 2003



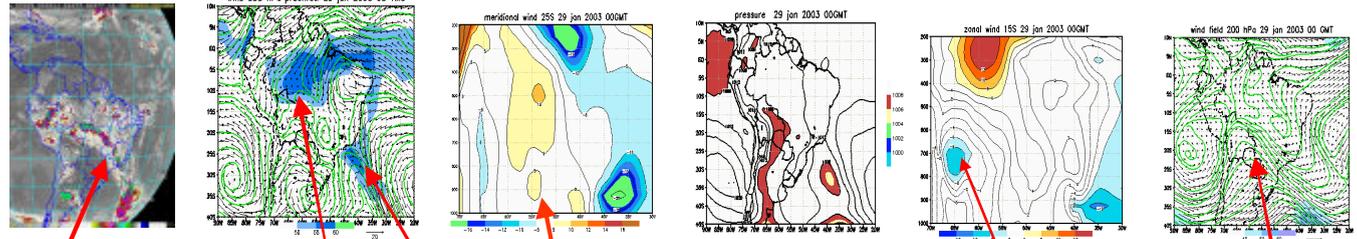
Development of a MCC over northern Argentina associated with the LLJ

Low pressure over northern Argentina

Strong low level westerly component over northern Bolivia

Bolivia high and strong westerlies over northern Argentina

JAN 29 2003



SACZ occurrence

Precipitable water (Amazonia and SACZ)

Southerly winds

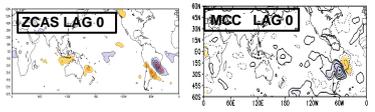
Higher pressure over northern Argentina

Easterly component over northern Bolivia

Amplified high level trough

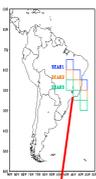
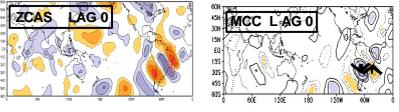
**OPPOSITE RELATION BETWEEN ZCAS AND MCC IN THE INTRASEASONAL TIMESCALE**

CORRELATION OLR X OLR



CONVECTION IN ZCAS OR IN MCC REGIONS: DEPENDENT ON THE POSITION OF THE LOW FREQUENCY UPPER LEVEL TROUGH AND RIDGE OVER SOUTH AMERICA, THAT IS PART OF A PSA WAVETRAIN.

CORRELATION OLR X MERID.WIND



PERIODS OF NORTHERLIES : LLJ  
 PERIODS OF SOUTHERLIES : FRONTS

There are strong easterlies at 15 S, over the coast and over eastern Brazil, from the end of January and beginning of February, at the same time when there is strong LLJ.

Easterly component at tropical west Amazonas and westerly component over central Argentina. Over subtropical region there is a change in the zonal wind direction.

During SALLJEX, strong low level northerly winds over the LLJ area occurred when there was development of MCCs and a short wave disturbance over northern Argentina. Weak southerly winds were observed in that area in cases of frontal systems moving northwards and in SACZ episodes. The main differences discussed in two cases of these occurrences are related to the meridional wind variability, intensity of pressure in the Chaco Low, the presence of a ridge or trough over central South America and zonal wind component over northern Bolivia. Intraseasonal variability has an influence on the behaviour of the two regimes (LLJ/MCC and SACZ) which show opposite relations

**Acknowledgements.**  
 UCAR/JOSS, IAI CRN-055 (PROSUR) and FAPESP